



CITY OF HAYWARD
AGENDA REPORT

AGENDA DATE 06/07/01
AGENDA ITEM _____
WORK SESSION ITEM 2

TO: Mayor, City Council, Planning Commission
FROM: Director of Community and Economic Development
SUBJECT: General Plan Update Regarding Circulation Issues

RECOMMENDATION:

It is recommended that the City Council and Planning Commission review and comment on the information provided in this report.

BACKGROUND:

The purpose of this report is to provide a background for discussion of current circulation issues that are relevant to the General Plan Update. Circulation is a rather broad term that refers to the ability to move about within and through the community. Circulation includes all modes of transportation, such as automobiles and commercial motor vehicles, public transit systems, pedestrian movements, bicycles and other non-motorized vehicles, and related parking considerations.

A comprehensive update of the Circulation Element of the General Plan was undertaken during 1997. The year-long planning effort involved substantial public participation, including the appointment of a citizen task force to discuss identified issues and develop preliminary recommendations. Much of the discussion centered on the proposed road and street network and provisions for public transit. Many of the task force recommendations reaffirmed priorities previously established for various transportation improvement projects. The City Council adopted the revised Circulation Element on February 24, 1998.

Although no major changes to the proposed transportation network are envisioned as part of this General Plan revision process, it will be necessary to update information on existing and future traffic conditions in order to reflect changes that may have occurred since 1998. The existing Circulation Element includes a horizon year of 2010. Pursuant to requirements of the Alameda County Congestion Management Agency (CMA), staff is working with consultants to prepare traffic model analyses for 2005 and 2020 to ascertain the impact of development proposed in the General Plan on major arterials included in the Metropolitan Transportation System (MTS). In addition, the new model runs will produce data on traffic volumes that will be utilized in the update of the Noise Element. Updated level of service analyses for key intersections will be used to determine any significant impacts from implementation of the

General Plan. This data will also assist in the preparation of air quality analyses. The list of intersections included in the updated level of service analysis is presented as Exhibit A.

The Bicycle Master Plan, which proposes a network of bicycle facilities and sets priorities for implementation, was updated in early 1997 and is summarized in the Circulation Element. The City is currently participating in a joint effort with AC Transit and other agencies and organizations to develop improved and expanded transit services for the central Alameda County area. The passage of the reauthorization of Measure B provided significant additional funding for transit throughout the county. It is anticipated that recommendations of the transit study will be implemented by the summer of 2002.

DISCUSSION:

In view of the attention that was given to the road and street network during the recent revision of the Circulation Element, this discussion focuses on the physical layout of streets and the resulting impacts on alternative modes of transportation. Principles of "smart growth" call for greater attention to the design of streets and the overall streetscape and consideration of how those aspects can contribute to the creation of more livable neighborhoods. It has been said that "streets are not the dividing lines within the city; they are to be communal rooms and passages." (Moule and Polyzoides, *The New Urbanism*, 1994). Furthermore, the quality of street design can play a significant role in determining property values within a neighborhood and throughout the city. The following discussion focuses on the design of the street pattern and public rights-of-way and the need for coordination with alternative modes (e.g. sidewalks, bicycle lanes) and consideration of related concerns (e.g., pedestrian safety, street trees and landscaping). These aspects are discussed under the general headings of block patterns, street width and right-of-way, and traffic-calming devices.

Block Patterns

Although the block pattern is essentially established in Hayward and there are few large parcels available for development, areas proposed for infill development and redevelopment near transit routes or stations (e.g., Cannery Area) can present opportunities for alternative street patterns. The urban grid layout, in comparison to the typical curvilinear pattern found in suburban neighborhoods, offers several advantages. The shorter block lengths (400-600 feet) and more direct connections disperse auto traffic and provide easier pedestrian access to public transit, schools, parks, stores and other destinations. Avoidance of cul-de-sacs also promotes more direct access for auto and pedestrian traffic.

Street Width and Right-of-Way

The city has adopted several different street cross-section standards to provide for flexibility in responding to specific situations. The typical standard calls for local residential streets to have a 36' curb-to-curb width within a 48' right-of-way. This allows for two travel lanes (10' wide) and parking (8' wide) on both sides while also providing for sidewalks (6' wide) on both sides. The typical standard for private streets is 24' curb-to-curb with two travel lanes (12' wide) and

no parking. The above standards are applied regardless of the number of dwelling units served within the subdivision. Collector streets in newer residential areas typically have a 36' curb-to-curb width within a 56' right-of-way. This allows for planter strips (4' wide) between the street and the sidewalks to provide for street trees and improved pedestrian safety. Variations on standard street cross-sections allow for bicycle lanes or routes on certain streets as designated in the Bicycle Facilities Master Plan.

On-Street Parking. In some older areas of Hayward, existing streets are too narrow to allow parking on both sides of the street and two vehicles to pass at the same time. In other areas, some streets have been designed to provide for parking on only one side, and in some cases no parking at all, although typically with increased off-site parking requirements. In new developments, it may be possible to consider the use of alleys to provide for vehicular access and parking. In reviewing proposed development projects, the need for on-street parking may vary depending on the topography, density of development, adjacent land use, or other specific concerns in the surrounding neighborhood.

Sidewalks, Planter Strips and Street Trees. Although sidewalks are typically found on both sides of the street, it may be appropriate to consider the provision of sidewalks on only one side of the street in some areas, particularly in hillside developments where minimizing grading is an important consideration. And in more suburban areas, no sidewalks may be appropriate. Where there are sidewalks, it may be appropriate to reconsider the placement of sidewalks adjacent to the curb, which has been the city's standard for new developments due to damage and even loss of street trees in the past. Inclusion of planter strips between the curb and the sidewalk can avoid driveway flares in the sidewalk area and provide the separation from vehicular traffic that enhances the safety of pedestrians. Planter strips, by allowing for the placement of street trees, can also contribute substantially to the value of adjacent properties. Street trees provide the canopy that enhances the streetscape, narrows the apparent width of the street, and provides shade for parked vehicles and pedestrian traffic. In addition, street trees can help reduce the impacts from vehicle emissions. The inclusion of landscaped medians on major collector streets and arterials can further serve to reduce the apparent street width.

Emergency Response Access. The width of streets, and cul-de-sacs in particular, must also reflect the need to provide for emergency response access. The size of cul-de-sacs, and "hammerhead" turnarounds at the end of private streets, is determined by turning requirements for emergency apparatus. It may be appropriate to review these standards giving consideration to possible future changes in the types of emergency response equipment that are used, as well as to the current situation where head-in parking typically occurs in the cul-de-sacs.

Curb Radii. Similar concerns also affect the standards adopted for curb turning radii (how sharp or round the corner is at intersections). Although more-rounded corners facilitate turning movements for fire engines (as well as buses), less-rounded corners tend to slow down turning automobile traffic and make it easier for pedestrians to navigate the intersection. To favor pedestrian passage at intersections in more urbanized areas such as the Downtown, it may be appropriate to consider decreasing corner radii from current standards.

Traffic-Calming Devices

Traditional methods that are often requested by residents to deter or slow down traffic on local streets include the installation of traffic signals or stop signs. However, these devices are not always effective and often result in traffic moving faster along the intervening street segments. In recent years, a number of "traffic-calming" devices have been increasingly utilized to address the issues of speeding traffic and pedestrian safety. Examples of traffic-calming devices are presented in Exhibit B. For example, bulb-outs at intersections, such as those found along B Street in the Downtown area, act to slow traffic and facilitate crossing by pedestrians. Some cities have installed lighted crosswalks to enhance pedestrian safety. Hayward will soon have two such installations, one on Amador by the Courthouse and the other on Eden Way by Aradigm. In other areas and under certain conditions, speed humps have been used to slow down traffic. Hayward has adopted policies and standards for the placement of speed humps, and they have been installed on 23 streets. The roundabout is another traffic device that has been employed, although at limited locations and under special conditions. Existing roundabout locations in the Hayward area include Fairview Avenue at Five Canyons Parkway, Orchard Avenue at Joyce Street, Arrowhead Way at entry points into the Twin Bridges neighborhood, and in Stratford Village. It is possible that other traffic-calming devices discussed in Exhibit B may also be appropriate in Hayward.

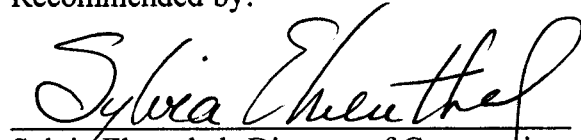
SUMMARY:

In all of the above discussion, the important consideration is that street design standards should allow for a choice in determining the best approach in a given situation. Determinations on the most appropriate measures to deal with identified concerns must take into account a number of factors, including the function and location of the particular street and whether the general character of the area is suburban or urban, or somewhere in between. Staff is seeking guidance to ensure that existing policies and standards provide the flexibility to incorporate evolving techniques in addressing the variety of circulation needs and concerns throughout Hayward.

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Jesús Armas, City Manager

Attachments: Exhibit A. List of Intersections to be Analyzed in Traffic Study
Exhibit B. Traffic Calming Primer (Pat Noyes & Associates)

LIST OF INTERSECTIONS TO BE ANALYZED

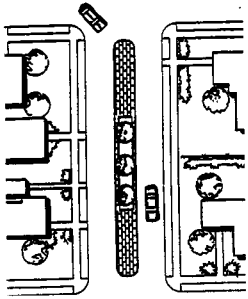
1. B Street/Center Street/Kelly Street
2. Mission Boulevard/A Street
3. Foothill Boulevard/A Street
4. Mission Boulevard/Foothill Boulevard/Jackson Street
5. NB I-880 Ramps/A Street
6. SB I-880 Ramps/A Street
7. Hesperian Boulevard/A Street
8. Mission Boulevard/Carlos Bee Boulevard
9. Mission Boulevard/Harder Road
10. Mission Boulevard/Tennyson Street
11. Mission Boulevard/Industrial Parkway
12. Industrial Parkway SW/Industrial Parkway West
13. Industrial Parkway SW/Whipple Road
14. NB I-880 Ramps/Whipple Road
15. SB I-880 Ramps/Industrial Parkway
16. Hesperian Boulevard/Industrial Parkway
17. Hesperian Boulevard/EB SR 92 Ramps
18. Hesperian Boulevard/WB SR 92 Ramps
19. Industrial Boulevard/EB ER 92 Ramps
20. Industrial Boulevard/WB SR 92 Ramps
21. Clawiter Road/EB SR 92 Ramps
22. Whitesell Drive/EB SR 92 Ramps
23. Clawiter Road/WB SR 92 Ramps
24. Clawiter Road/WB SR 92 off-ramp
25. Whitesell Drive/WB SR 92 off-ramp
26. Hesperian Boulevard/Industrial Parkway West
27. Harder Road/Santa Clara Street-Jackson Street
28. Santa Clara Street/Winton Avenue
29. Hesperian Boulevard/Winton Avenue
30. Santa Clara Street/A Street

Traffic Calming Primer

Pat Noyes & Associates

© Pat Noyes & Associates, 1998
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Median



Description:

Raised island in the center of the roadway with one-way traffic on each side.

Application:

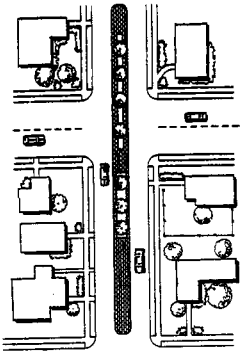
- Used on wide streets to narrow each direction of travel and to interrupt sight distances down the center of the roadway

Advantages:

- Narrowed travel lanes provide "friction" and can slow vehicle speeds
- Significant opportunity for landscaping and visual enhancement of the neighborhood
- Can utilize space which otherwise would be "unused" pavement
- Can be used to control traffic access to adjacent properties if desired

Disadvantages:

- Long medians may impact emergency access and operations
- May interrupt driveway access and result in U-turns
- May require removal of parking



Variations:

- Medians of various lengths can be constructed
- Can be constructed mid-block only to allow all turning movements at intersection
- Can be extended through intersections to preclude left turns or side street throughs

Special Considerations:

- Vegetation should be carefully designed not to obscure visibility between motorists, bicyclists and pedestrians at intersection and pedestrian crossing areas
- Maintain 12 foot wide lane minimum on each side
- Maximum length between access points should be 200' to accommodate emergency response - turning radii for a fire truck should be maintained at these breaks

Cost:

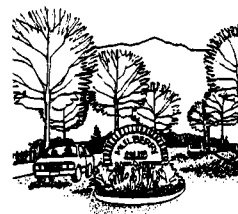
- High cost to construct, landscape and maintain



Entry Island (Neighborhood Identification Island)

Description:

A raised island in the center of a two-way street that identifies the entrance to a neighborhood.



Application:

- Placed in a roadway to define the entry to a residential area and/or to narrow each direction of travel and interrupt sight distance along the center of the roadway

Advantages:

- Notifies motorists of change in roadway character
- Helps slow traffic
- Opportunity for landscaping and/or monumentation for aesthetic improvements
- May discourage cut-through traffic

Disadvantages:

- Need for maintenance (and irrigation)
- May necessitate removal of parking

Variations:

- Can incorporate neighborhood identification signing and monumentation

Special Considerations:

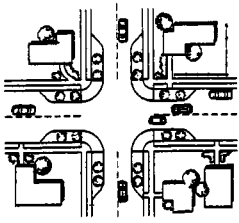
- Care should be taken not to restrict pedestrian visibility at adjacent crosswalk

Cost:

- Low to medium cost to install, landscape and maintain



Neckdown or Curb Extension



Description:

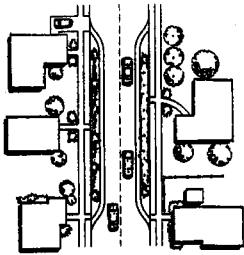
Segments of roadway narrowing where curbs are extended toward the center of the roadway.

Application:

- Typically used adjacent to intersections where parking is restricted
- Can be used to narrow roadway and shorten pedestrian crossings

Advantages:

- Pedestrian visibility increased and crossing distance reduced
- Narrowed roadway section may contribute to vehicular speed reduction
- Can “reclaim” pavement for pedestrian and streetscape amenities
- Breaks up drivers’ line-of-sight



Disadvantages:

- Creates drainage issues where curb and gutter exist
- May create a hazard for bicyclists

Variations:

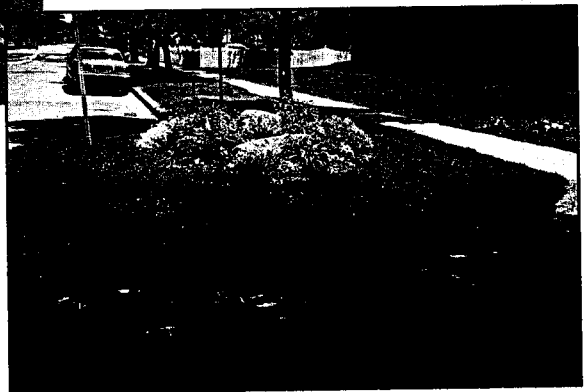
- Mid-block neckdowns often used in conjunction with pedestrian crossing treatments

Special Considerations:

- Curb extensions should not extend into bicycle lanes where present

Cost:

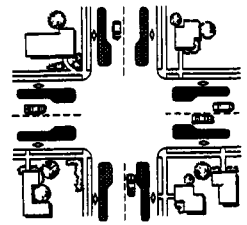
- Medium to high cost depending on landscaping, pavement treatments and storm drainage considerations



Chokers

Description:

Raised islands built to narrow the roadway. The islands are detached from the curbline, allowing drainage or bike lanes to continue behind the choker.



Application:

- Typically used adjacent to intersections where parking is restricted
- Can be used to narrow roadway and shorten pedestrian crossings

Advantages:

- Pedestrian crossing distance reduced
- Narrowed roadway section may contribute to vehicular speed reduction
- Breaks up drivers' line-of-sight

Disadvantages:

- May create hazard for bicyclists who are less visible to cross street and turning traffic

Variations:

- Mid-block chokers
- One-lane chokers that narrow the street to create a short one-lane, one-way section

Special Considerations:

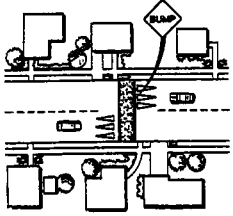
- Significant problems with maintenance and snow removal
- Debris builds in bikelane between the choker and the curbline, creating hazard for bicylists

Cost:

- Moderate



Speed Hump



Description:

Speed humps are areas of pavement raised 3-6 inches in height over a minimum of 8 feet. The combination of different heights, lengths and approach ramps will vary the speed a vehicle can comfortably go over the hump. They are marked with signs and pavement markings.

Application:

- Local streets where speed control is desired
- Local streets where cut-through traffic is to be discouraged

Advantages:

- Slows traffic
- Self enforcing
- Requires minimum maintenance; pavement markings must be maintained
- Minimal impact on snow removal

Disadvantages:

- Increases emergency response times
- May damage emergency response vehicles if not carefully designed
- May increase traffic noise in vicinity of hump

Special Considerations:

- Should not be used on critical emergency response routes
- Needs to be used in series or in conjunction with other traffic calming devices to control speeds
- Longer designs can minimize impact on long wheelbase vehicles

Cost:

- Low to moderate



Raised Crosswalk

Description:

Flat-topped speed hump built as a pedestrian crossing.

Application:

- Local streets where speed control and pedestrian crossing designation are desired
- Local streets where cut-through traffic is to be discouraged

Advantages:

- Slows traffic
- Increases pedestrian visibility in the crosswalk
- Clearly designates the crosswalks
- Requires minimum maintenance; pavement markings must be maintained
- Minimal impact on snow removal

Disadvantages:

- Increases emergency response times
- May damage emergency response vehicles if not carefully designed
- May increase traffic noise in vicinity of crosswalk
- May create drainage issues where raised crossing extends from curb to curb

Variations:

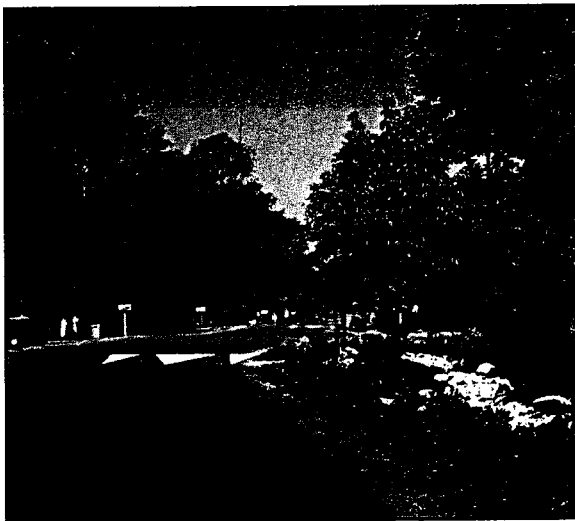
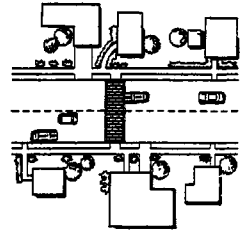
- Pavement treatment without the raised hump to create a pedestrian crossing focal point

Special Considerations:

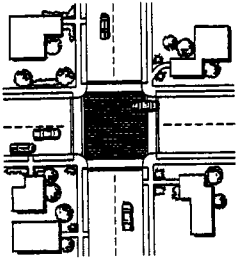
- Appropriate near schools and recreation facilities
- Should not be used on critical emergency response routes
- Needs to be used in conjunction with other traffic calming devices to control speeds
- If a new crosswalk location, may reduce available on-street parking
- May require extensive signing

Cost:

- Moderate



Raised Intersection



Description:

A raised section of roadway at an intersection where the pavement is elevated to be flush with the top of the curbing and the approaches are ramped like speed humps.

Application:

- Streets where speed reduction is desired
- Streets where discouragement of cut-through traffic is desired

Advantages:

- Effective speed mitigation
- Opportunity for attractive pavement treatments
- Improved pedestrian safety at intersection

Disadvantages:

- Requires storm drainage
- May require bollards to define the corners of the intersection
- May reduce emergency response time

Special Considerations:

- Special signing required
- Should not be used on critical emergency response routes

Cost:

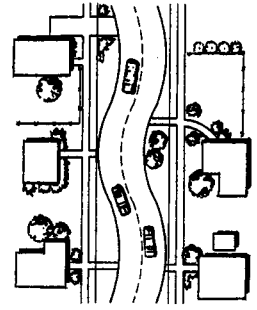
- High cost of construction and storm drainage



Curvilinear Street

Description:

A curved street alignment can be designed into new developments or retrofitted in existing rights-of-way. The curvilinear alignment requires additional maneuvering and reduces drivers' line-of-sight.



Application:

- Any street where speed control is desired
- Any street where reduced line-of-sight is desired

Advantages:

- Little to no impact on snow removal
- Aesthetically pleasing
- Provides landscaping opportunities
- Minimal impact on emergency response

Disadvantages:

- Expensive
- May have little or no impact on cut-through traffic
- Needs to be combined with narrowing or other traffic calming tools to have significant impact on speeds
- May require additional right-of-way to be effective

Variations:

- Chicanes
- Off-set curb extensions
- Systems of devices alternating from the center to curbside of the road

Special Considerations:

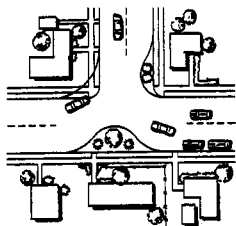
- Cannot be used where right-of-way is limited
- May require removal of on-street parking

Cost:

- High



Realigned Intersection



Description:

Realigns T-intersection to make the "through movement" a turning movement.

Application:

- Streets where it is desired to redirect traffic to another facility
- Streets where slowing traffic as it enters the neighborhood is desired

Advantages:

- Provides landscaping opportunities
- Discourages traffic from continuing through a neighborhood
- Slows traffic as it enters a neighborhood
- Breaks up sight-lines on straight streets

Disadvantages:

- May redirect traffic to another local street
- Fairly expensive

Variations:

- Stop sign control on one leg
- Stop sign control on all three legs
- Neckdowns in the intersection

Special Considerations:

- Drainage
- Potential for redirecting traffic to adjacent local streets
- May change stop configuration and affect emergency response times

Cost:

- High



Traffic Circle

Description:

Traffic circles are raised circular medians in an intersection with counterclockwise traffic flow. Vehicles must change their travel path to maneuver around the circle and are typically controlled by "Yield on Entry" on all approaches.

Application:

- Streets where speed control is desired
- Intersections where improved side-street access is desired

Advantages:

- Provides increased access to street from side street
- Slows traffic as it drives around circle
- Breaks up sight-lines on straight streets
- Opportunity for landscaping in the intersection

Disadvantages:

- Definition of right-of-way is contrary to the "yield to the vehicle on the right" rule
- May impede emergency response
- Relatively expensive if curb extensions are required
- May impede left turns by large vehicles
- On streets with bicycle facilities, bikes must merge with traffic around circle

Variations:

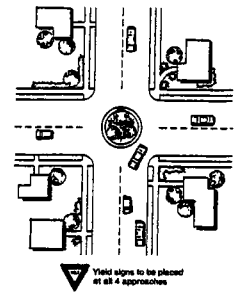
- With or without neckdowns
- With or without diverter islands
- Different sizes and dimensions
- Barrier curb and gutter face or tapered/mountable face

Special Considerations:

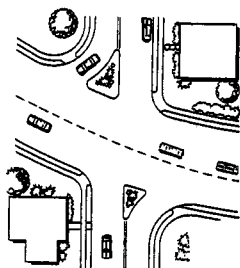
- Need to be used in series or in conjunction with other traffic calming devices
- Should not be used on critical emergency response routes
- May require extensive signing
- Maintenance concerns associated with plowing, sweeping and asphalt maintenance around circle
- May require educational campaign and learning period

Cost:

- High



Restricted Movement Barrier



Description:

Barrier island that prevents certain movements at an intersection.

Application:

- Streets where reducing cut-through traffic is desired

Advantages:

- Redirects traffic to main streets
- Reduces cut-through traffic
- Increases opportunity for landscaping in the roadway

Disadvantages:

- May negatively affect emergency response
- May increase trip length for some drivers

Variations:

- Medians on main street that allow left and right turns in but restrict left turns out or straight across movement from side street

Special Considerations:

- Should not be used on critical emergency response routes
- Has little or no affect on speeds for through vehicles

Cost:

- Moderate



Entrance Barrier

Description:

Physical barrier that restricts turns into a street. Creates a one-way segment at the intersection while maintaining two-way traffic for the rest of the block.

Application:

- Local streets where cut-through traffic is a concern
- Local streets where vehicles from nearby facility circulate looking for parking

Advantages:

- Restricts movements into a street while maintaining full access and movement within the street block for residents
- Reduces cut-through traffic
- Opportunity for increased landscaping
- More self enforcing and aesthetically pleasing than turn restriction signing

Disadvantages:

- May redirect traffic to other local streets
- May increase trip length for some drivers
- In effect at all times; even if cut-through problem exists only at certain times of day

Variations:

- Can be used in pairs to create a semi-diverter, restricting turns onto the street and movements across the intersection

Special Considerations:

- Should not be used on critical emergency routes
- Has little or no effect on speeds for local traffic
- Consider how residents will gain access to street

Cost:

- Moderate to high

